

**Remarks**

The Office Action mailed September 8, 2006 has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1-6, and 8-20 are now pending in this application. Claims 1-7 are rejected. Claims 8-20 have been withdrawn from consideration. Claim 7 has been canceled. No new matter has been added.

In accordance with 37 C.F.R. 1.136(a), a one month extension of time is submitted herewith to extend the due date of the response to the Office Action dated September 8, 2006, for the above identified patent application from December 8, 2006, through and including January 8, 2007. In accordance with 37 C.F.R. 1.17(a)(1), authorization to charge a deposit account in the amount of \$120.00 to cover this extension of time request also is submitted herewith.

The rejection of Claims 1, 3, and 5 under 35 U.S.C. § 112 is respectfully traversed. Claims 1 and 3 have been amended to remove relative terms cited by the Examiner. Moreover, Claim 5 has been amended to remove insufficient antecedent basis. For the reasons set forth above, Applicants respectfully request that the Section 112 rejections of Claims 1, 3, and 5 be withdrawn.

The rejection of Claims 1-7 under 35 U.S.C. § 102(b) as being anticipated by Meier et al. (U.S. Patent No. 6,438,838) ("Meier") is respectfully traversed.

Meier describes a method for repairing a vane (5) for a turbine. The repair method requires the damaged vane (5) to be severed along a parting plane (12) such that a damaged section, vane section (5'), is removed and a stub (13) is formed. During repair, an inductor (16) is arranged around the periphery (15) of stub (13). A replacement vane (20) that corresponds in shape and curvature to stub (13) is aligned with stub (13) wherein the replacement vane (20) is subsequently welded to stub (13) in a protective gas atmosphere using high-frequency welding. Specifically, a high-frequency current is applied to inductor (16) wherein the material of stub (13) and replacement vane (20) melts or softens such that replacement vane (20) and stub (13) are bonded together when the replacement vane (20) is brought into contact with stub (13). Notably, Meier does not describe nor suggest coupling a replacement blade

portion to a remaining blade portion with a single-pass weld forming a single weld joint extending along a cut line.

Claim 1 recites a method of replacing a portion of a gas turbine engine rotor blade, the rotor blade having an original blade contour defined by a blade first sidewall and a blade second sidewall, the method comprising “cutting through the rotor blade such that a cut line extends from a leading edge of the blade to a trailing edge of the blade and between the first sidewall and the second sidewall, and such that the cut line extends at least partially through a hollow portion of the blade defined between the first and second sidewalls . . . removing the portion of the rotor blade that is radially outward of the cut line . . . and coupling a replacement blade portion to remaining blade portion with a single-pass weld forming a single weld joint extending along the cut line such that a newly formed rotor blade is formed with an aerodynamic contour that is one of an improvement in an aerodynamic performance over the original blade contour and mirroring the original blade contour.”

Meier does not describe or suggest a method of replacing a portion of a gas turbine engine damaged rotor blade as recited in Claim 1. Specifically, Meier does not describe or suggest coupling a replacement blade portion to a remaining blade portion with a single-pass weld that forms a single weld joint extending along a cut line extending from a leading edge of the blade to a trailing edge of the blade, and at least partially through a hollow portion of the blade defined between the first and second sidewalls. Rather, in contrast to the invention, Meier describes a method for repairing a damaged vane wherein the damaged portion is removed along a parting plane forming a stub, and a replacement vane is welded to the stub using an inductor and high-frequency welding. Accordingly, for the reasons set forth above, Claim 1 is submitted to be patentable over Meier.

Claim 7 has been cancelled, and Claims 2-6 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 2-6 are considered in combination with the recitations of Claim 1, Applicants submit that Claims 2-6 likewise are patentable over Meier.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1-7 be withdrawn.

The rejection of Claims 1-7 under 35 U.S.C. § 102(b) as being anticipated by Hellemann et al. (U.S. Patent No. 6,568,077) ("Hellemann") is respectfully traversed.

Hellemann describes a method for repairing compressor rotor airfoils (14). The repair method requires that damage (18) on the airfoil (14) be machined away to form a notch (28). Notch (28) is formed along either or both leading and trailing edges (24 and 26) of airfoil (14). During repair, notch (28) is filled by welding a repair (32) therein using a welding machine (34). Specifically, weld layers (32a) are formed within notch (28) for restoring the original configuration of airfoil (14). After forming weld layers (32a) within notch (28), the weld repair (32) is machined. Notably, Hellemann does not describe nor suggest forming a cut line extending from a leading edge to a trailing edge and between a first sidewall and a second sidewall of a blade. Moreover, Hellemann does not describe nor suggest coupling a replacement blade portion to a remaining blade portion with a single-pass weld forming a single weld joint extending along a cut line.

Claim 1 recites a method of replacing a portion of a gas turbine engine rotor blade, the rotor blade having an original blade contour defined by a blade first sidewall and a blade second sidewall, the method comprising "cutting through the rotor blade such that a cut line extends from a leading edge of the blade to a trailing edge of the blade and between the first sidewall and the second sidewall, and such that the cut line extends at least partially through a hollow portion of the blade defined between the first and second sidewalls . . . removing the portion of the rotor blade that is radially outward of the cut line . . . and coupling a replacement blade portion to remaining blade portion with a single-pass weld forming a single weld joint extending along the cut line such that a newly formed rotor blade is formed with an aerodynamic contour that is one of an improvement in an aerodynamic performance over the original blade contour and mirroring the original blade contour."

Hellemann does not describe or suggest a method of replacing a portion of a gas turbine engine damaged rotor blade as recited in Claim 1. Specifically, Hellemann does not describe or suggest cutting through the rotor blade such that a cut line extends from a leading edge of the blade to a trailing edge of the blade, and at least partially through a hollow portion of the blade defined between the first and second sidewalls. Moreover, Hellemann does not describe or suggest coupling a

replacement blade portion to a remaining blade portion with a single-pass weld that forms a single weld joint extending along the cut line. Rather, in contrast to the invention, Helleman describes repairing compressor rotor airfoils wherein a damaged portion of the airfoil is machined away forming a notch along leading and/or trailing edges of the airfoil, and restoring the airfoil to its original configuration by forming weld layers within the notch. Accordingly, for the reasons set forth above, Claim 1 is submitted to be patentable over Helleman.

Claim 7 has been cancelled, and Claims 2-6 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 2-7 are considered in combination with the recitations of Claim 1, Applicants submit that Claims 2-7 likewise are patentable over Hellemann.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1-7 be withdrawn.

Moreover, Applicants respectfully traverse the intended use rejection. Specifically, Claim 1 has been amended to remove statements of intended use. For at least the reasons set forth above, Applicants respectfully request that the intended use rejection be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



---

Phillip A. Shipley  
Registration No. 51,357  
ARMSTRONG TEASDALE LLP  
One Metropolitan Square, Suite 2600  
St. Louis, Missouri 63102-2740  
(314) 621-5070